H. GLOSSARY

activation	The process of making a material radioactive by exposing the material to neutrons, protons, or other nuclear particles.
activity	A measure of the rate at which a material is emitting nuclear radiation. Activity is usually measured in terms of the number of nuclear disintegrations which occur in a quantity of the material over a period of time. The standard unit of activity is the curie (Ci), which is equal to 37 billion (3.7×10^{10}) disintegrations per second.
airborne emissions	Radioactivity in the form of radioactive particles, gases, or both that is transported by air.
alpha particle	A type of radiation consisting of a positively charged particle which is indistinguishable from a helium atom nucleus, consisting of two protons and two neutrons. Alpha radiation is not very penetrating and is easily shielded, for example by a sheet of paper or the outermost layer of skin.
annual dose	The dose (for an individual in rem) or collective dose (for a population in person-rem) received in one year.
annual risk of latent cancer fatalities	The probability of occurrence per year multiplied by the number of latent fatal cancers for an individual or a group.
aquifer	A water-bearing layer of permeable rock, sand, or gravel located beneath the surface of the earth which is capable of yielding water to a well or spring.
archaeological areas	Areas of or relating to the scientific study of material remains, such as fossil relics, artifacts, or monuments of past human life and activities.
average individual	An individual who could consume items or occupy areas at rates which would be typical for the population of interest.
base flood	A flood which has a 1-percent probability of occurrence in any given year. Also referred to as a 100-year flood.
beta particle	A type of radiation consisting of a high speed electron or positron. Beta particles are moderately penetrating and are stopped by materials such as a thick pad of paper or a thin sheet of metal.
biota	The plant and animal life of a region.
cairn	A mound of stones erected as a landmark or memorial.

canister	A thin-walled, unshielded metal container used to hold fuel assemblies. Canisters are used in combination with specialized "overpacks" that provide shielding and structural support for transportation or storage purposes. (Overpacks are sometimes referred to as casks.)
cask	A heavily shielded, typically robust metal or concrete container for shipping or dry storage of spent nuclear fuel assemblies.
cladding	A metal casing that surrounds the nuclear fuel.
collective dose	The population dose. The summation of the radiation dose equivalent received by all individuals in a population group. Generally it is calculated by multiplying the average dose times the number of individuals in a group. Units of dose are presented in person-rem.
collocated workers	A population of workers who are housed at facility area located some distance from the reference facility area.
consequence	The product of dose (for an individual) or collective dose (for a population) and a risk factor for health detriment. For latent cancer fatalities, the units which are used to present consequence are probability of a latent cancer fatality (for an individual) and estimated number of latent cancer fatalities (for a population).
container shipments	A single loaded container (canister or cask) that is shipped to a repository. Several casks or canisters (each is a container shipment) may be shipped together in the same train, so the number of trains will likely be smaller than the number of container shipments. For reusable casks, such as the M-140 transportation cask, each reuse is counted as a container shipment.
containments	Devices designed to limit the spread of radioactive contamination to an area as close as possible to the source, and to prevent contaminating other material. A containment may be as complex as an engineered tent or as simple as a plastic bag.
core	The central portion of a nuclear reactor containing the nuclear fuel.
corrosion	The process denoting the destruction of metal by chemical or electrochemical action.
corrosion products	The substances produced by corrosion of a metal. Rust is a common corrosion product resulting from the corrosion of iron.

criteria pollutants	The six pollutants for which National Ambient Air Quality Standards have been promulgated: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter 10 microns or smaller, and sulfur dioxide.
critical organ	The limiting organ for evaluating exposure to ionizing radiation. A critical organ is determined by the following criteria: (1) the organ that accumulates the greatest concentration of a radioactive material, (2) the necessity of the organ to the well being of the entire body, (3) the organ most damaged by the entry of a radionuclide into the body, and (4) the organ damaged by the lowest exposure. Usually, criterion (1) is the determining factor for choosing the critical organ.
criticality	A nuclear chain reaction producing radioactive fission products.
cumulative impact	The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.
curie (Ci)	The curie is the common unit used for expressing the magnitude of radioactive decay in a sample containing radioactive material. Specifically, the curie is that amount of radioactivity equal to 3.7×10^{10} (37 billion) disintegrations per second. This unit does not give any indication of the radiological hazard associated with the disintegration.
defueling	Removal of all nuclear fuel from a nuclear-powered ship or a land-based reactor.
de minimis	The emission rate or air quality concentration of a pollutant below which a particular air regulation would not apply.
design basis accidents	Accidents that are postulated for the purpose of establishing functional requirements for safety significant structures, systems, components and equipment (DOE Order 0421.3 or 5480.23). A postulated accident believed to have the most severe expected impacts on a facility; used as the basis for safety analysis and protection by structural design.
diffusion	The process of spreading out or scattering from regions of higher concentration to regions of lower concentration.
dispersion	The process of scattering or distributing over a large region.

disposal container	A cylindrical container constructed of highly corrosion-resistant metal alloys that will be loaded with spent nuclear fuel assemblies, sealed, and disposed of in an underground repository. Loaded and sealed disposal containers are called "waste packages."
dose	A measure of the amount of energy from all types of ionizing radiation absorbed by tissue for an individual. Units of dose are "rem".
dose rate	The amount of radiation dose delivered in a unit amount of time; for example, in rems per hour.
dose rate conversion factor	A factor which converts the exposure to a given radiation level to the dose that an individual could receive. This factor is usually expressed in rems per hour per curie per cubic meter (or square meter).
dry storage (of spent nuclear fuel)	The storage of spent nuclear fuel assemblies in environments where the fuel is not immersed in water for purposes of cooling and/or shielding. Dry storage systems typically consist of metal or concrete cylindrical containers that can hold from several up to approximately 70 fuel assemblies.
dual-purpose container systems	A spent nuclear fuel container system can be designed for purposes of storage or transportation or disposal (single-purpose); storage and transportation (dual-purpose); or storage, transportation, and disposal (multi-purpose).
element	A chemical substance that cannot be divided into simpler substances by chemical means. A substance whose atoms all have the same atomic number.
endangered species	A species or subspecies which is in danger of extinction throughout all or a significant portion of its range.
environmental consequences	Changes to the environment resulting from the effects of specific impacts or activities, such as radiation, radioactive materials, transportation, etc.
Expended Core Facility (ECF)	A large laboratory facility, located at the Naval Reactors Facility in Idaho, consisting of water pools and shielded cells used to receive, examine, and ship naval spent nuclear fuel and irradiated test specimen assemblies. Naval spent nuclear fuel is prepared at the Expended Core Facility for shipment to the Idaho Chemical Processing Plant for storage..

exposure, external	The subjecting of the outside of the body of an organism to ionizing radiation.
exposure, internal	The subjecting of the inside of the body of an organism to ionizing radiation.
exposure, occupational	The subjecting of an individual to ionizing radiation in the course of employment.
exposure, radiation	The subjecting of a material or organism to ionizing radiation.
fissile	A material whose nucleus is capable of being split (fissioned) by neutrons of all energies.
fission	The splitting of a heavy nucleus into two approximately equal parts which is accompanied by the release of a relatively large amount of energy and generally one or more neutrons.
fission products	During operation of a nuclear reactor, heat is produced by the fission (splitting) of "heavy" atoms, such as uranium, plutonium, or thorium. The residue left after the splitting of these "heavy" atoms is a series of intermediate weight atoms generally termed "fission products." Because of the nature of the fission process, many fission products are unstable and, hence, radioactive.
floodplain/wetlands assessment	An evaluation which consists of a description of a proposed action, a discussion of its effects on the floodplain/wetlands, and a consideration of alternatives.
footprint	The area affected by release of radioactive material.
fuel	Fissionable material used or usable to produce energy in a nuclear reactor. Fuel may also refer to a mixture, such as natural uranium, in which only part of the atoms are readily fissionable. (See also spent nuclear fuel.)
fugitive dust	The dust released from activities associated with an alternative such as construction, manufacturing, or transportation.

gamma ray	High-energy, short wavelength electromagnetic radiation. Gamma radiation frequently accompanies beta particle emissions. Gamma rays are very penetrating and are stopped most effectively by dense materials such as lead or uranium. They are essentially similar to x-rays but are usually more energetic and originate from the nucleus. Cobalt-60 is an example of a radionuclide that emits gamma rays.
geology	The study of the origin, history, materials, and structure of the earth.
Greater Than Class C waste	As defined by 10 CFR Part 61.55, a class of low-level waste generated by the commercial sector that exceeds U.S. Nuclear Regulatory Commission concentration limits for Class C low-level wastes, as specified in 10 CFR Part 61, and is not generally acceptable for near-surface disposal. This classification is based on the concentrations of curies per cubic meter of specified radionuclides.
groundwater	Water that exists or flows beneath the earth's surface in the zone of saturation between saturated soil and rock.
half-life, biological	The time required for a biological system, such as an organ or tissue in an organism, to clear by natural (non-radioactive) processes, half the amount of a substance that has entered it.
half-life, radioactive	The time required for half of the atoms of a radioactive material to decay to another nuclear form.
hazardous wastes	Excess chemical material that is dangerous to human health; see Resource Conservation and Recovery Act.
health detriment	The sum of all fatal cancers, a fraction of the non-fatal cancers proportional to the severity of the cancer types, and all genetic defects associated with a particular exposure.
high-efficiency particulate air (HEPA) filter	A ventilation system device that can separate a particle the size of 0.3 micron from the air into a filter medium at an efficiency of at least 99.97%.
hydrology	The study of the properties, distribution, and effects of water on the earth’s surface, in the soil and underlying rocks, and in the atmosphere.
incident-free operations	Routine, day-to-day operations without accidents or other unexpected or unusual occurrences. Synonymous and interchangeable with normal operations.

input-output analysis	A method used to assess the economic impact of alternatives by measuring both the direct and secondary impacts of an activity on a local economy.
intercalated	The existence of one or more layers between other layers.
ion	An atom or molecule which has acquired an electrical charge by gaining or losing electrons.
ionizing radiation	Any radiation which displaces electrons from atoms or molecules, thereby producing ions. Examples include alpha, beta, and gamma radiation. Exposure to ionizing radiation may produce skin or tissue damage.
irradiate	To expose to radiation.
isotope	One of two or more nuclides which have the same number of protons but have different numbers of neutrons in their nuclei. Therefore, the isotopes of an element have the same atomic number but different atomic weights. Isotopes of an element usually have very nearly the same chemical properties but somewhat different physical properties.
latent cancer fatality	The unit for the health detriment of fatal cancer, after a period of time, for an individual as a result of radiation dose. The product of dose in rem and the health effects conversion factor for fatal cancer for an individual (general public or worker).
latent cancer fatalities	The unit for the health detriment of fatal cancers, after a period of time, in a population as a result of collective dose. The product of collective dose in person-rem and the health effects conversion factor for fatal cancers for a population (general public or workers).
long-lived radioactivity	Radioactive nuclides which decay slowly, therefore having relatively long half-lives.
M-130 transportation cask	A naval spent nuclear fuel shipping container which is certified per 10 CFR Part 71 requirements, used for ship and rail transportation.
M-140 transportation cask	A naval spent nuclear fuel shipping container which is certified per 10 CFR Part 71 requirements and is used solely for rail transportation.

maximally exposed individual (MEI)	A theoretical individual who receives the highest radiation dose from the facility or activity in question, particularly for transportation; or a theoretical individual located at the point on the DOE site or shipyard boundary nearest to the facility or activity in question.
maximum consequence	The same as greatest consequence.
maximum foreseeable facility accident	The hypothetical accident with an annual probability of occurrence of 1×10^{-7} or greater, which is postulated to occur during naval spent nuclear fuel loading, storage, or unloading operations which results in the most severe consequences.
maximum individual	An individual who could consume items or occupy areas at rates which would be at a maximum for the population of interest.
meteorology	The study of historical data concerning (1) weather stability and (2) wind patterns and speeds for a particular area used in analyses of airborne contamination accidents. In this EIS, 50% meteorology represents the average meteorological conditions. The 95% conditions represents the meteorological condition that would produce environmental effects more severe than all but the most unlikely conditions.
mil	A unit of length equal to one-thousandth (1×10^{-3}) of an inch.
millirem (mrem)	A special unit for measuring dose equivalents which is equal to one-thousandth (1×10^{-3}) of a rem.
mixing layer	The layer of air above the ground through which relatively vigorous vertical mixing occurs.
monitoring, environmental	The periodic or continuous determination of the amount of radioactivity or radioactive contamination present in a region.
multi-purpose container systems	A spent nuclear fuel container system can be designed for purposes of storage or transportation or disposal (single-purpose); storage and transportation (dual-purpose); or storage, transportation, and disposal (multi-purpose).
Naval Nuclear Propulsion Program	A joint program of the Department of Energy and the Department of the Navy which has as its objective the design and development of improved naval nuclear propulsion plants having high reliability, maximum simplicity, and optimum fuel life for installation in ships ranging in size from small submarines to large combatant surface ships. The program is frequently referred to as the Naval Reactors Program.

nearest public access individual (NPA)	A theoretical motorist stranded on a public highway which crosses a federal reservation where spent nuclear fuel operations are conducted.
neutron	An uncharged particle with a mass slightly greater than that of a proton, found in the nucleus of every atom heavier than hydrogen. Neutrons sustain the fission chain reaction in a nuclear reactor.
nuclear fuel	See fuel.
nuclear reactor	A device in which nuclear fission is initiated and controlled to produce heat which is then used to generate power.
nuclear reactor accident	An accident which results in release of fission products from the nuclear fuel.
nonradiological risk	Risks from chemical or physical hazards.
normal operations	All normal conditions and those abnormal conditions that frequency estimation techniques indicate occur with a frequency greater than 0.1 events per year.
nuclide	An atomic form of an element which is distinguished by its atomic number, atomic weight, and the energy state of its nucleus. These characteristics determine the other properties of the element, including its radioactivity.
organ	A group of tissues which together perform one or more definitive functions in a living body.
overpack	Specialized devices used in combination with canisters to provide shielding and structural support for transportation and storage purposes.
particulate	Pertaining to a very small piece or part of a material.
pathway	The route or course along which radionuclides from spent nuclear fuel could reach anyone.
perched	Unconfined ground water separated from an underlying main body of groundwater by an unsaturated zone.
photon	An individual unit of electromagnetic energy, generally regarded as a discrete particle, having zero mass, no electric charge, and an indefinitely long lifetime.

pool storage (of spent nuclear fuel)	The temporary or interim storage of spent nuclear fuel assemblies in racks at the bottom of deep, water-filled basins. See also water pools.
probable maximum flood	The largest flood for which there is any reasonable expectancy in a specific area. The probable maximum flood is normally several times larger than the largest flood of record.
Programmatic SNF and INEL EIS	The Department of Energy Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Final Environmental Impact Statement.
prototype plants	Land-based naval nuclear reactor plants that are typical of a first design for a naval warship and are used to test equipment and the nuclear fuel prior to use on a shipboard nuclear plant. Prototype plants are also used to train naval officers and enlisted personnel as propulsion plant operators by giving them extensive watchstanding experience and a thorough knowledge of all propulsion plant systems and their operating requirements.
rad	The special unit of absorbed dose. One rad is equal to an absorbed dose of 100 ergs/gram.
radiation	The emission and propagation of energy through matter or space by means of electromagnetic disturbances which display both wave-like and particle-like behavior. In this context, the "particles" are known as photons. The term has been extended to include streams of fast-moving particles such as alpha and beta particles, free neutrons, and cosmic radiations. Nuclear radiation is that which is emitted from atomic nuclei in various nuclear reactions and includes alpha, beta, and gamma radiation and neutrons.
radiation, external	Radiation from a source outside the body that penetrates the skin.
radiation, internal	Radiation when the source of radiation is within the body as a result of deposition of radioelements in body tissues.
radiation field	A region where radiation is present.
radiation level	The measured amount of radiation in a region.

radioactive contamination	The deposition of radioactive material in any place where it may harm persons, invalidate experiments, or make products or equipment unsuitable or unsafe for some specific use. The presence of unwanted radioactive matter.
radioactive decay	The process of spontaneous transformation of a radioactive nuclide to a different nuclide or different energy state of the same nuclide. Radioactive decay involves the emission of alpha particles, beta particles, or gamma rays from the nuclei of the atoms. If a radioactive nuclide is transformed to a stable nuclide, the process results in a decrease of the number of original radioactive atoms. Radioactive decay is also referred to as radioactive disintegration.
radioactive waste	Equipment and materials which are radioactive and for which there is no further use. Radioactive wastes are generally classified as high-level waste (those resulting from reprocessing reactor fuel or the used reactor fuel itself), low-level waste, or low-level waste containing transuranic elements or uranium-233.
radioactivity	The process of spontaneous decay or disintegration of an unstable nucleus of an atom; usually accompanied by the emission of ionizing radiation.
radiological consequences	The changes to the environment or the health of a person(s) as a result of the effects of radiation exposure or radioactive materials.
radionuclides	Atoms that exhibit radioactive properties. Standard practice for naming radionuclides is to use the name or atomic symbol of an element followed by its atomic weight (e.g., cobalt-60 or Co-60, a radionuclide of cobalt).
reactor years	The total number of years that all reactors in the Naval Nuclear Propulsion Program have been in service.
rem	A unit of measure used to indicate the amount of radiation exposure a person receives (an acronym for roentgen equivalent man).

Resource Conservation and Recovery Act (RCRA)	A Federal law addressing the management of waste. Subtitle C of the law addresses hazardous waste rules under which a waste must either be "listed" on one of the U.S. Environmental Protection Agency's hazardous waste lists or meet one of that agency's four hazardous characteristics of ignitability, corrosivity, reactivity, or toxicity, as measured using the toxicity characteristic leachate procedure. Cradle-to-grave management of wastes classified as RCRA hazardous wastes must meet stringent guidelines for environmental protection as required by the law. These guidelines include regulation of transport, treatment, storage, and disposal of RCRA defined hazardous waste. Subtitle D of the law addresses the management of nonhazardous, nonradioactive, solid waste.
risk	The product of the probability of occurrence per year of an event and the consequence. For normal operations, the probability per year of the event is equal to one; therefore, the risk is equal to the consequences. For accidents, the probability per year of an event is less than one; therefore, the risk is less than the consequence. See consequence.
risk factor	Numerical estimate of the severity of harm associated with exposure to a particular risk agent.
sediment	Particles of organic or inorganic origin that accumulate in loose form, after being previously suspended in water (or other liquid).
seismicity	The quality or state of shaking or vibrating caused by an earthquake.
shipment	See container shipment.
shipping container	A specially designed large container used to transport spent nuclear fuel on a railcar. Shipping container designs are certified by the Department of Energy and the Department of Transportation for the shipment of spent nuclear fuel.
single-purpose container systems	A spent nuclear fuel container system can be designed for purposes of storage or transportation or disposal (single-purpose); storage and transportation (dual-purpose); or storage, transportation, and disposal (multi-purpose).
socioeconomics	The welfare of human beings as related to the production, distribution, and consumption of goods and services.
source	Radiation producing equipment or materials.

source shielding	Materials used to prevent or reduce the passage of particles of radiation from the source.
special case waste	Waste that is owned or generated by the DOE that does not fit into typical management plans developed for the major radioactive waste types. The naval special case waste addressed in this EIS is low-level radioactive waste that contains concentrations of certain short- and long-lived isotopes which requires disposal by more stringent measures than land burial.
spent nuclear fuel	Fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated by reprocessing. Spent nuclear fuel is usually removed because of chemical, physical, or nuclear changes that make the fuel no longer efficient (in other words, "spent") for production of heat but not because of the complete depletion of fissionable material. Upon refueling or defueling, naval spent nuclear fuel is shipped for temporary storage at INEL.
threatened species	Any species or subspecies which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
total risk of latent cancer fatalities	The probability of occurrence per year times the latent cancer fatalities multiplied by the number of years (in this EIS, 25 or 40 years).
total latent cancer fatalities	The estimated latent cancer fatalities for a population over a prescribed period (25 or 40 years for this EIS).
toxic	Relating to substances (natural as well as man-made chemicals) that may cause harm or injury to one or more of the body's tissues or organs if the amount received is sufficient and the conditions by which harm or injury occurs are present.
uranium	[Symbol U] A natural radioactive element with the atomic number 92 and, as found in natural ores, an average atomic weight of approximately 238. The two principal natural isotopes are uranium-235 (0.7 percent of natural uranium) and uranium-238 (99.3 percent of natural uranium). Natural uranium also includes a minute amount of uranium-234.

water pools	Deep pools of water that are used to inspect and hold spent nuclear fuel assemblies. Storage racks are located below the water surface to support and position the fuel assemblies in place for handling and to prevent the formation of a critical mass.
wetlands	Those areas which are covered by water with a frequency sufficient to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflow, mud flats, and natural ponds.